

competition flourish by freeing all mobile and wireless
communications providers to compete to effectively.

Respectfully submitted,

BAY AREA CELLULAR TELEPHONE
COMPANY

Adam A. Andersen
Senior Counsel

651 Gateway Blvd., Suite 1500
South San Francisco, CA 94080
Telephone: (415) 244-5656

GRAHAM & JAMES

Martin A. Mattes
Suzanne E. Curtis

By


Martin A. Mattes

One Maritime Plaza, Suite 300
San Francisco, CA 94111
Telephone: (415) 954-0200

Attorneys for BAY AREA
CELLULAR TELEPHONE COMPANY

March 18, 1994

CERTIFICATE OF SERVICE

I, Jeannie Wong, certify that I have on this date caused the foregoing REPLY COMMENTS OF BAY AREA CELLULAR TELEPHONE COMPANY (U-3007) to be served on the parties of interest in I. 93-12-007 by sending a copy by United States mail, first-class, postage prepaid, to all parties on the attached service list.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 18th day of March 1994, at San Francisco,
) California.



Jeannie Wong

Lee L. Selwyn
Consultant
Economics and Technology, Inc.
One Washington Mall
Boston, MA 02108

Judith A. Endejan
GTE California, Inc.
One GTE Place, CA500LB
Thousand Oaks, CA 91362-3811

Bruce Malt/Mark Gascoigne/Dennis Shelley
Information Technology Service
Internal Service Department
9150 East Imperial Highway
Downey, CA 90242

E.K. Eleaser/W.H. Booth/J.S. Faber
Jackson, Tufts, Cole & Black
650 California Street, 32nd Floor
San Francisco, CA 94108

Richard L. Kashdan, Esq.
Law Offices of Richard L. Kashdan
507 Polk Street, #320
San Francisco, CA 94102

Earl Nicholas Selby, Esq.
Law Offices of Earl Nicholas Selby
420 Florence Street, Suite 200
Palo Alto, CA 94301

Mark E. Brown, Attorney
Regulatory and Governmental Affairs
MCI Telecommunications Corp.
201 Spear Street, 9th Floor
San Francisco, CA 94105

James M. Tobin/Yolanda M. Tate
Morrison & Foerster
345 California Street, 33rd Floor
San Francisco, CA 94104

R.S. Foosaner/L.R. Krevor
Nextel Communications, Inc.
601 Thirteenth Street N.W.,
Suite 1110 South
Washington, DC 20005

Robert J. Glostein
Orrick, Herrington & Sutcliffe
Old Federal Reserve Bank Building
400 Sansome Street
San Francisco, CA 94111-3143

J.P. Tuthill/T.C. Cabral/D.P. Discher
Pacific Bell
2600 Camino Ramon, Room 2W806
San Ramon, CA 94583

M.B. Day/J.F. Candelaria
Wright & Talisman
100 Bush Street, Suite 225
San Francisco, CA 94106

Peter A. Casciato
8 California Street, Suite 701
San Francisco, CA 94111

Adam Andersen
Bay Area Cellular Telephone Co.
651 Gateway Boulevard, Suite 1500
South San Francisco, CA 94080

Scott K. Morris
McCaw Cellular Communications, Inc.
5400 Carillon Point
Kirkland, WA 98033

Mary B. Cranston/Megan Waters Pierson
Pillsbury, Madison & Sutro
P.O. Box 7680
San Francisco, CA 94120

Mark Savage/Robert Gnaizda
Public Advocates, Inc.
1535 Mission Street
San Francisco, CA 94103

Monique Byrnes, Consultant
Technologies Management, Inc.
P.O. Drawer 200
163 East Morse Boulevard, Suite 300
Winter Park, FL 32790-0200

Thomas J. Long, Staff Attorney
TURN
625 Polk Street, Suite 403
San Francisco, CA 94102

Paul David Marotta
The Corporate Law Group
Century Plaza I
1065 East Hillsdale Boulevard, Suite 108
Foster City, CA 94404

M. Shames/L. Briggs, Esqs.
Utility Consumers' Action Network
1717 Kettner Boulevard, #105
San Diego, CA 92101

David M. Wilson
Young, Vogt, Hartick & Wilson
425 California Street, Suite 2500
San Francisco, CA 94104

Richard Nelson/Mike Mowry
PacTel Corporation
2999 Oak Road, 8th Floor, MS 1050
Walnut Creek, CA 94596

A.H. Pelavia/M.P. Schreiber/M.H. Bang
Cooper White & Cooper
201 California Street, 17th Floor
San Francisco, CA 94111

James D. Squeri
Armour Goodin Schlotz & MacBride
505 Sansome Street, Suite 900
San Francisco, CA 94111

VIA HAND DELIVERY (2)
Janice Grau
California Public Utilities Commission
505 Van Ness Avenue, Room 5023
San Francisco, CA 94012

VIA HAND DELIVERY
President Daniel Fessler
Room 5218

VIA HAND DELIVERY
Commissioner Patricia M. Eckert
Room 5207

VIA HAND DELIVERY
Commissioner Norman D. Shumway
Room 5213

VIA HAND DELIVERY
Commissioner P. Gregory Conlon
Room 5200

VIA HAND DELIVERY
Commissioner Jessie Knight
Floor

VIA HAND DELIVERY
ALJ Thomas Pulsifer
Room 5020

VIA HAND DELIVERY
Truman Burns, DRA
Room 4103

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Association

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David Williams
Editor

GRAHAM & JAMES

Kristie L. Wittenberry
Assistant Editor

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ONE MARITIME PLAZA
SAN FRANCISCO, CA 94111

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**"BROADCASTERS' AMENDMENT" CHALLENGED BY PCIA, LMCC, GENERAL INSTRUMENT;
They Say Broadcasters Should Not Get Free Spectrum For Services That Would Stunt HDTV**

If broadcasters want to provide what they call "ancillary and supplemental services" such as PCS on spectrum already allocated to them for the sole purpose of broadcasting non-subscription services, they must compete in auctions, the Personal Communications Industry Association (PCIA) and several other parties told House Telecommunications and Finance Subcommittee Chairman Edward Markey (D-Mass.) this week.

Earlier this month, Markey asked government agencies and industry groups what effect the amendment to HR 3636 would have on wireless services and on the future value of spectrum. The amendment was offered several weeks ago by Rep. W.J. (Billy) Tauzin (D-La.) to allow flexible use of spectrum by TV broadcasters, to whom the FCC tentatively has allocated 6 MHz of spectrum for the development of digital High Definition Television (HDTV).

Tauzin withdrew the amendment when it came up before the House Telecommunications and Finance Subcommittee and sentiment was running against it [*BULLETIN*, March 4]. But it is expected to be considered again by the parent House Energy and Commerce Committee, possibly during the week of March 14.

"The commission must seize the momentum of today's action and move forward quickly to adopt--and implement--specific procedures for PCS. A more than adequate record on PCS auctions has been created. The industry stands ready to meet the pent up consumer demand for these new services. The substantial benefits PCS will bring to the American economy, efficiency and competitiveness should not be further delayed."

PCIA President Thomas A. Stroup

TV broadcasters expect some spectrum will be left over after the transition from the 53-year-old analog standard to HDTV, and they want to use that spectrum to expand their services.

Several industry groups responded to Markey's letter, including the National Association of Broadcasters, whose president, Edward Fritts, contended that competitive bidding is intended for the allocation of new spectrum, not for the renewal or modification of a license. Broadcasters consider their desire for flexible use of their already-licensed spectrum to be a modification, thereby making them exempt from competing in auctions, according to Fritts' letter.

But that would "destabilize the use and value of spectrum licenses" by allowing broadcasters "a virtually unrestricted ability" to supersede the FCC's spectrum allocation decisions, PCIA President Thomas A.

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Stroup said. "It is fundamentally unfair to those who must compete at auctions for limited spectrum opportunities in such areas as Commercial Mobile Services," Stroup continued.

"If broadcasters receive a new license that gives them the right to obtain compensation from subscribers, they should obtain that license... at auction as everyone else is required to do," wrote Roy Neel, president of the United States Telephone Association. The broadcasters fought for years for spectrum to develop HDTV, and if they no longer need it for that purpose, it should be returned to the FCC for reallocation, agreed John B. Richards, general counsel to the Land Mobile Communications Council, which called the proposal "a blatant spectrum grab."

"To turn around now and give broadcasters the right to use that HDTV-reserve for mobile radio services would be doubly unfair," USTA wrote. Not only that, but it would make the future of HDTV uncertain in the United States, said USTA and Robert Rast, vice president of HDTV development at General Instrument Corp., which first proposed a digital HDTV system to the FCC.

"It does not make sense to squander this lead [over Japan and Europe] at the last minute for the short-term benefit of a special interest group," Rast wrote, arguing that the amendment will delay HDTV development significantly. "A likely result is that digital broadcast HDTV would never be introduced in the United States, or at least not until after it has become widely available in Europe and Japan," Rast added.

FCC SETS FIVE-YEAR LIMIT FOR PUBLIC SAFETY MICROWAVE USERS IN PCS BANDS; Not All Will Have To Move, Officials Say, But PCS Carriers Can Insist, Pay All Costs

Relocating to other parts of the spectrum has been called a "soft landing" for fixed microwave incumbents, especially since PCS carriers and other emerging technologies will foot the bill and guarantee that the incumbents do not suffer any loss of reliability as a result of moving to a new new system. Even public safety services may have to pack their bags, rather than staying indefinitely under the FCC's original grandfathering provision, the commission decided this week.

Although its previous decision exempted public safety licensees from being moved out of the 2 GHz band, when the FCC reconsidered that part of the decision this week it said public safety agencies will have five years to reach a sharing agreement with PCS or other emerging technology users.

If no PCS carrier seeks to use the spectrum during the five-year period, the public safety incumbents could remain. But when offered a relocation that is financially complete and technically equivalent to the current system, the agencies would have to move.

The FCC's final ruling gives public safety agencies four years to negotiate voluntarily, followed by a one-year mandatory relocation period if they don't reach an agreement.

Commission officials pointed out that this group -- which includes police, fire, rescue

Other Rules for Emerging Technologies Include:

- deadline to reach a structure or separation of spectrum for public safety standards by July 15, 1993, even if it requires relocation;
- full spectrum available to any organization that volunteers to move;
- relocation allowed within the 2 GHz band when all affected parties agree;
- 20 MHz separation between transmit and receive frequencies;
- maintained frequency pairings for other relocation bands, but will consider non-standard channel pairings on a case-by-case basis.

and emergency medial operations -- will not be disadvantaged because the PCS carriers must pay for the relocation and must build new facilities that fully meet the incumbents' needs.

"Don't assume all microwave incumbents will be moved tomorrow or within the next five years," said David Siddall of the commission's Office of Engineering and Technology. Some microwave incumbents may never be asked to move, some will negotiate, and others may share the spectrum, Siddall added.

**FCC ESTABLISHES BASIC PROCEDURES FOR SPECTRUM AUCTIONS;
But Rules For Specific Services Such As Narrowband, Broadband PCS Are Still To Come**

In a move that an FCC official called a "major milestone" on its journey to spectrum auctions, the commission adopted a general menu of auction procedures. The rules will apply to narrowband and broadband PCS and other new technologies.

Auctions will be used only where license applications are mutually exclusive and if the carrier will be paid for the services, which exempts most mass media services. Additionally, the commission also specified that spectrum for intermediate links will not be auctioned, which is a change from its original proposal that was supported by PCIA.

As its preferred bidding method, the commission chose simultaneous multiple round bidding (SMRB), which allows a bidder to bid on more than one spectrum block at a time and to know what its competitors are bidding. However, it can choose to use other bidding methodologies and will base its auction design decisions on the degree to which licenses are interdependent and whether the expected license values are high or low.

FCC officials anticipate licenses will have high values and interdependence and believes SMRB will be the best bidding method when this is the case. Robert Pepper, chief of the FCC Office of Plans and Policy, described interdependence as the case in which one market is more valuable to a bidder if he can win it along with its surrounding markets.

But simultaneous multiple rounds, which may be more costly and complex, are not engraved in stone. The rules are somewhat flexible in that simpler auction methods such as sealed bidding may be conducted for licenses with anticipated low values. Pepper said the FCC also will consider grouping high-level interdependent market areas for simultaneous sequential auctions.

Bidders must pay a minimum of \$2,500 up front, which may be reduced for designated entities -- such as small businesses, businesses owned by women and minorities, and rural telcos -- or modified on a service-specific basis. The commission has the authority to place a cap on the upfront payment to avoid frivolous bidding. Winning bidders, excluding designated entities, must pay within five days after the auction an additional amount that brings their down payment to 20 percent of their winning bid. The remaining 80 percent must be paid within five business days following license award.

If the highest bid is withdrawn or that bidder is disqualified during the auction, the bidding party must pay the difference between its bid and the amount the government receives for the license. If a bidding party is disqualified or withdraws its bid after the auction has closed, an additional penalty equal to three percent of the amount the government receives for the license will be imposed.

The commission adopted more specific rules for designated entities, first by allowing small businesses to pay for the spectrum in installments over the term of the license. Small businesses will be defined as independently-owned businesses with a net worth no higher than \$6 million and an average net income after taxes for the two preceding years no more than \$2 million.

In order to receive preferences, businesses owned by women and minorities must have at least a 50.1

percent ownership and a 50.1 percent controlling interest, and may be required to prove the de facto control resides with minority or female owners. Rural telcos must be "independently owned, have 50,000 or less access lines and serve communities with no more than 10,000 inhabitants," according to the rules. There are hundreds of rural telcos, Pepper explained, and all but 29 will be eligible.

The FCC also said it may employ set-asides for the designated entities, but it didn't establish any specific set-aside blocks. It did establish specific provisions designed to prevent unjust enrichment by designated entities that get licenses at less than full market value as a result of the government's preferences. Pepper said the commission expects to propose service-specific rules within the next several months, but no meeting date has been set.

DIAL PAGE'S LATEST SMR DEALS TAKE COMPANY INTO TEXAS; And There it Will Meet Nextel, Pittencrieff

Dial Page made another series of SMR deals that will extend the coverage of Dial Call, its Enhanced SMR company, to the southwest. In eastern and central Texas, Dial Page has agreed to buy more than 500 SMR channels, customer accounts and other assets from Advanced MobileComm and a group of small SMR operators in the area.

With the Texas acquisitions, Dial Page said, it will have more than 18,000 SMR channels for conversion to ESMR services.

Advanced MobileComm is the SMR subsidiary of Fidelity Investments, the large mutual fund company. Dial Page did not have available a list of the other SMR operators from whom it will buy assets, but the company's spokeswoman said all of them are small operators.

On March 8, the day the deal was announced, Dial Page stock traded on the Nasdaq exchange between \$56.25 and \$58 and closed at \$58, an increase of \$1.625 over the previous day's closing price. At \$58, the deal would be worth a total of \$87 million.

It adds a thirteenth state to Dial Call's coverage. It will cover the four largest markets in Texas -- Dallas / Fort Worth, Houston, San Antonio and Austin -- as well as the interstate highways that link those cities, I-10, I-35 and I-45. Thus the ESMR company will cast a much broader net than the five states in which Dial Page provides paging service. But paging, referred to as "short messaging," is a feature of the Motorola-supplied ESMR systems being built by Dial Call, Nextel and CenCall Communications.

However, the latest acquisitions will take Dial Call into direct competition with Nextel Communications, which also plans to convert its Dallas / Fort Worth and Houston SMR systems to Enhanced SMR. Texas also is part of the multi-state SMR network owned by Pittencrieff Communications Inc. of Abeline, Texas. Pittencrieff is strong in Austin and San Antonio, according to Douglas Sinclair, its chief financial officer. The company also has SMR systems in Dallas / Fort Worth, Houston and Beaumont, he said.

Dial Page said it will pay with 1.5 million shares of a new company that will be created to hold the Dial Call and Dial Page assets, as part of Dial Page's previously announced deal with Motorola [BULLETIN, Nov. 12]. The new company will file a registration statement with the Securities and Exchange Commission, assuming that Dial Page's shareholders approve the reorganization. It will be considered at their next meeting, which will be held before the end of May, the spokeswoman said.

On March 9, when the deal became generally known, Dial Page's stock ranged between \$57 and \$60.75; it closed at \$59, an increase of \$1.00. On March 10, the stock ranged between \$58.75 and \$59.75. It closed at the former price, and at that level the deal would be worth about \$89.6 million.

MOTOROLA INTRODUCES ENVOY, ITS PERSONAL INTELLIGENT COMMUNICATOR; It Comes With Three Communications Modes, \$1,500 Suggested Price Tag

Motorola this week introduced Envoy, its personal intelligent communicator and personal digital assistant. Envoy combines both functions -- two-way data communications and a large variety of software programs bundled with the device for communications and information management.

Motorola said shipment will begin this summer with a suggested retail price of about \$1,500. Envoy users have three options for communications -- wireless on the Ardis network; infrared to a distance of nine feet between Envoys or between an Envoy and an Envoy-equipped computer; and conventional wireline data communications. Users will control the Envoy by touching graphic icons or through a virtual keyboard on the LCD screen. In keyboard mode, the LCD displays a typewriter keyboard for entering information or commands.

The Envoy applications software is based on Magic Cap, the communications-oriented operating system developed by General Magic Inc. and the Telescript communications technology also developed by General Magic, a partnership of Apple Computer, AT&T, Matsushita / Panasonic, Philips and Sony as well as Motorola.

Envoy users will be able to use AT&T's PersonalLink system, which incorporates Telescript, and the Ardis wireless network, the Motorola / IBM partnership that covers 80 percent of the U.S. population and 90 percent of U.S. business activity. Envoys also will communicate over RadioMail Corp.'s wireless gateway, which connects with the worldwide Internet, and with Ex Machina Inc.'s wireless server.

Built-in software will include America Online for financial information and general communications with other subscribers, CompuServe Inc., Mead Data Central, Sony Electronic Publishing's Official Airline Guides, PenWare's spreadsheets and graphs and an expense tracking package from Intuit. Motorola said more than 15 third-party software packages will be available when it starts shipping Envoys.

The company also said future generations of Envoy may add connectivity with other facilities-based, wireless systems such as: the Enhanced SMRs using the Motorola Integrated Radio System, the two-way Nationwide Wireless Network being built by Mobile Telecommunication Technologies (Mtel), the Cellular Digital Packet Data (CDPD) systems being developed by most major cellular carriers, and the RAM Mobile Data network, which uses Ericsson's technology.

The Envoy will have two slots for PCMCIA Type II cards so users can run third-party software and take advantage of additional memory at the same time. Its built-in memories will be one megabyte of random access and four megabytes of read-only. A conventional data port will connect the Envoy to personal computers, conventional keyboards, scanners and printers.



Motorola's New Envoy PIC

One intriguing feature will be a speaker and microphone that lets users personalize their data messages. They'll be able to record a 20-second voice message to introduce or comment on the data or announce it with one of a selection of musical phrases known as stamps. But the voice or music introductions will work only when received by other Envoys.

The NiCad battery will provide eight hours of continuous use. A special read-only security circuit will identify the device and its owner and will simplify registration when roaming. Motorola's High Performance Microprocessor Division designed a special chip set, which includes an application-specific integrated circuit. The chip set will be available to General Magic alliance members and other companies that license its technology.

HEWLETT-PACKARD ADDS WIRELESS OPTIONS TO ITS HP 100LX; PageNet, SkyTel, National Dispatch Center To Provide Services

Working with several paging companies to deliver data, messages, news, sports and financial information, Hewlett-Packard introduced wireless communications for its top-of-the-line palmtop computer, the HP 100LX. The new service, HP StarLink, will be available April 4.

PageNet will be the preferred carrier for national, regional and local message delivery on its recently inaugurated nationwide network. SkyTel will handle international deliveries, and the National Dispatch Center in San Diego will accept alphanumeric pages for H-P 100LXs and send them on their way.

The pricing plan provides four levels of service:

- **Basic** -- \$10.95 per month will provide bilingual operator dispatch, message forwarding and retrieval, timed transmission and messages broadcast to groups. Transactions will be charged by the breadth of geographic coverage.
- **Local** -- 100 computer-transmitted messages per month for \$19.95. For \$29.95, users can have 50 operator-transmitted messages.
- **Regional** -- Will cost \$36.95 per month. One- or two-region service will be available at a higher rate.
- **Nationwide** -- All major metropolitan areas of the United States can be covered for \$62.95 per month.

HP StockLink financial service will cost \$60 per month. The Motorola NewsCard receiver with software for the HP 100LX costs \$229. The HP 100LX costs \$549 or \$749 for an expanded-memory version.



Hewlett-Packard's 100LX

...Hewlett-Packard, Novell Target Consumer Market Through Investment In Geoworks

At the same time, Hewlett-Packard and Novell Inc. invested in Geoworks of Alameda, Calif., which has developed an operating system for inexpensive consumer computing devices. The companies did not disclose the amount or any other terms of the investment. But they did say Geoworks' operating system, GEOS, is highly efficient for mobile computers, information appliances, smart telephones and interactive

television. And they emphasized the consumer market for these devices.

Brian Dougherty, chairman and CEO of Geoworks, sees "a huge market for small sub-\$500 products that will allow the average person to send or request virtually any amount of digitized material, including voice, text and graphics over extended networks."

But Robert J. Frankenberg, vice president and general manager of HP's Personal Information Products Group in Corvallis, Ore., is setting his price threshold even lower. "To create a high volume market over the next few years, we will need very low cost appliances in the sub-\$300 category, with high performance and functionality," he said.

APPLE WORKS WITH ARDIS, RAM MOBILE DATA ON COMMUNICATIONS FOR NEW NEWTON 110

Apple Computer announced a new generation of its Newton personal digital assistant (PDA) and an upgrade program for the much maligned first generation. Apple's Personal Interactive Electronics Division also is working on adding two-way wireless communications options for Newton users.

Apple and BellSouth MobileComm already are heavily advertising their joint leasing-and-communications program, which allows users to lease a Newton and get one-way messaging, data communications and paging over the MobileComm system.

Now Apple is working with Ardis and RAM Mobile Data to provide the Newton PDAs with access to their two-way wireless networks. But although the companies said they're working on two-way wireless access, they did not give any dates for arrival of the services. Digital Ocean Inc. of Lenexa, Kan., also is developing wireless local area networking products for the Newton.

Many of the original functions of the original Newton have been improved or enhanced in the newest version of the Newton, the MessagePad 110. For example, it has three times the memory capacity and its Achilles heel -- its handwriting recognition system -- has been improved. It will now recognize letters one at a time, instead of trying to read entire words.

Users who rely on a Newton to take notes in a meeting will be able to defer the handwriting recognition phase until the meeting is over or there's a break for the PDA to digest and classify the words. It will be easier to add new names and words to the Newton's memory, and the infrared transfer of data to a desktop PC will be faster. The operating life of the NiCad battery was tripled, and the alkaline battery's life was doubled. Recharging also will be much faster.

The Newton 110 became available this week in the United States at a suggested price of \$599. Availability is expected in Canada and the United Kingdom later this month and in some other countries later this year. Apple also introduced the Newton 100, an upgraded version of the original Newton that provides the improved functions of the Newton 110 in the case of the original. It will be available next month at \$499. Upgraded software for the original Newton also will be available next month for \$99.

NYNEX MOBILE TESTS TRW'S ANTI-FRAUD SYSTEM

Nynex Mobile Communications is the second cellular carrier to test the PhonePrint anti-fraud system developed by the ESL subsidiary of TRW Inc. They are running the test in the New York / northern New Jersey market.

PhonePrint validates calls at the cell site and identifies those that appear to be coming from a cloned phone. They can be blocked before getting into the public switched network. PacTel Cellular announced

last year that it was testing PhonePrint in its Los Angeles system [BULLETIN, Oct. 22].

ESL also has established a new business unit, TRW Wireless Communications, to develop products that will support carriers in managing cellular and PCS spectrum in the United States and other countries. ESL promoted Jeffry W. Phillips, who is responsible for bringing the PhonePrint system to market, to managing director of the new division. ESL was started 30 years ago by William J. Perry, who was then a professor at Stanford University. He is now the U.S. Secretary of Defense.

CENCALL COMMUNICATIONS ALMOST DOUBLES REVENUE IN 1993

CenCall Communications Corp., the SMR operator that plans to build a large Enhanced SMR system in the western and northwestern states, reported losses for the fourth quarter and year that ended Dec. 31. But the company, which provides SMR service to more than 42,000 subscriber units, almost doubled its revenue last year over revenue during 1992.

During 1993, CenCall lost \$8.1 million or 60 cents per share on revenue of \$11.9 million. This compares with 1992, when it lost \$1.8 million or 18 cents per share on revenue of \$5.7 million. CenCall lost \$5.7 million or 33 cents per share on revenue of \$3.5 million during its fourth quarter, which ended Dec. 31. A year earlier it lost \$630,604 or six cents per share on revenue of \$2.0 million.

The company had a negative cash flow, or loss before interest, taxes, depreciation and amortization, of \$3.9 million during the fourth quarter of last year, compared to a positive cash flow of \$161,534 during the same period of 1992. The negative cash flow for 1993 was \$3.8 million, compared to \$60,160 in negative cash flow during 1992.

PAGENET PLANS TO USE MOTOROLA'S FLEX PAGING SYSTEM FOR ITS OPERATIONS; Flex, Multi-Speed Technology Boosted Capacity By 400 Percent In Kansas City Test

As a result of its successful six-month test of Motorola's FLEX high speed paging protocol, Paging Network Inc. (PageNet) plans to use FLEX for its nationwide and local paging operations. The test, conducted in Kansas City, Mo., on PageNet's equipment, involved Motorola's Nucleus paging transmitters, C-Net control equipment and FLEX-capable pagers.

With FLEX, PageNet increased its channel capacity to between 600,000 and 800,000 pagers per channel from the POCSAG capacity of 150,000 to 200,000 pagers per channel, said Ronald Turner, PageNet's vice president for systems and technology. "We found that Motorola's new Nucleus transmitters not only support FLEX as promised, but they improve the performance of POCSAG as well," Turner said.

He pointed out that under some circumstances, FLEX requires a stronger signal to work properly. But with minor infrastructure additions to upgrade from POCSAG, FLEX "stands up better to stressful conditions in the field, and it greatly improves the efficiency of broadcast channels and radio spectrum assignments," he added.

...Motorola's Paging Products Group Develops Narrowband Products

Meanwhile, Motorola's Paging Products Group is developing products for narrowband PCS or advanced paging systems that will include channel pairing options for new and existing systems. The group is the lead contractor for the infrastructure and portable equipment that will run on Mobile Telecommunication Technologies Corp.'s Nationwide Wireless Network. It will include PCMCIA cards and stand-alone messaging devices.

...As Its Customer-Owned Paging Group Provides Automated Messaging For Casinos

And with an agreement between Motorola's Customer Owned Paging Group and International Game Technology (IGT), many casino workers may soon be wearing pagers to monitor printers and display terminals. IGT manufactures slot machines, video game equipment and software for computerized, wide-area game monitoring systems.

Motorola's Alert Central system connects automatic monitoring functions to a paging system. IGT will integrate this into its Smart System, a slot marketing and revenue tracking system. This will allow alarms or maintenance information reported by the Smart software to be transmitted to Motorola pagers, which will be worn by casino maintenance, security and VIP host personnel.

LEICA CORP. BUYS CIVILIAN GPS BUSINESS FROM MAGNAVOX; Deal Includes Partnership With Cue Paging System

The U.S. subsidiary of the Leica Corp. bought the Navstar Global Positioning System business of Magnavox Electronic Systems Co. The Magnavox business includes its partnership with Cue Network Corp. to develop the commercial market for precision position determination.

Their ACC-U-POINT partnership uses Magnavox's GPS enhancement technology and distributes the data over Cue's FM subcarrier paging system. ACC-U-POINT is available in 16 U.S. cities.

Leica will combine Magnavox's GPS business with the Leica U.S. geodesy business in Buffalo, N.Y. Magnavox's civilian GPS business had about 40 employees in Torrance, Calif., all of whom have transferred to Leica and will remain in Torrance. Magnavox did not sell its military GPS business.

Leica's geodesy unit is responsible for products for highly precise geographic measurement. It is headquartered in Heerbrugg, Switzerland. Leica is best known for its photography products, including the 35 mm camera, which it invented.

BRIEFS

■ Motorola described as premature reports from Tokyo that an agreement had been reached by Motorola and the Japanese government and Japanese cellular carriers over Motorola's access to the largest market in Japan. No agreement has been reached, according to Motorola's spokesman in Washington, D.C.

■ Nextel Communications selected three computer industry suppliers for its Enhanced SMR system. Hewlett-Packard is supplying HP 9000 Unix-based computers. Nextel also is using Oracle Corp.'s financial software, and the customer billing system will be supplied by the CSC Intelicom subsidiary of Computer Science Corp.

■ Phoenix Management Inc. announced the Hearing Aid Telephone Interconnect System (HATIS), which allows the hearing-impaired to use cellular phones, PCS systems, computers, facsimile machines and answering machines in addition to landline phones. The patent-pending product is available for less than \$100. For more information, call 719 / 392 - 1442.

■ Skytel Communications, which is GTE Airfone's Canadian partner and a subsidiary of BCE Mobile Communications Inc., has agreed with Air Canada to install GTE's GenStar digital in-flight communications systems in its entire domestic and international fleet of 109 aircraft. Passengers will be able to place and receive calls and use laptop computers and portable fax machines. Planes flying international routes will get trans-oceanic service from Comsat. Installation will begin this month.

■ Comsearch is working with Qualcomm Inc. to develop CDMA analysis software that can be used to predict critical planning parameters for PCS systems using CDMA technology. Comsearch, in Reston, Va., is part of The Allen Group.

■ An extensive analysis of PCS markets at the licensing level of Major Trading Areas and Basic Trading Areas has been prepared by Moffet, Larson & Johnson Inc. (MLJ), an engineering consulting firm, and MTA - EMCI, which specializes in market studies of the paging, cellular and SMR businesses. They analyzed the market for 30-, 20-, and 10-MHz systems in each MTA and BTA, and they considered TDMA and CDMA technologies. Information on the study is available from MLJ in Falls Church, Va.; tel 703 / 824 - 5660. MTA - EMCI is in Washington, D.C., at 202 / 835 - 7800.

■ RAM Mobile Data and Oracle Corp., a major supplier of information management software and services, are developing Oracle products to provide wireless access to the Information Highway. Information in Oracle databases will be available to portable and handheld computer users over RAM's wireless data communications network, which cover more than 6,300 cities and towns across the United States. The companies will introduce their joint products later this year.

■ Through a licensing agreement with AccessLine Technologies Inc., Bell Mobility Inc. has exclusive rights to provide AccessLine's One Person, One Number technology in its service area. Bell Mobility, the name under which divisions of BCE Mobile Communications Inc. operate, will provide the latest generation of One Person, One Number to its paging and cellular customers in Quebec and Ontario, Canada. AccessLine will install, implement and support the latest generation, which has been licensed by US West NewVector Group and Ameritech Cellular.

PEOPLE

■ Glenayre Technologies Inc. promoted John J. (Jack) Hurley to the additional responsibilities of CEO, effective immediately. He remains president and chief operating officer. Clarke H. Bailey, who has been vice chairman of the board of directors, was given additional responsibilities as chairman of the executive committee of the board.

■ The FCC named John E. Logan as deputy director of its Office of Legislative Affairs. He was at the Department of Justice, where he supervised the administration of bankruptcy cases. He also worked in the department's Office of Legislative Affairs and held other management positions in the department. Before joining DOJ, he was an associate in a Newark, N.J., law firm.

MOBILE MARKETS

Mobile Markets is compiled by Donaldson, Lufkin, & Jenrette Securities Corporation,
Research and Investment Bankers to the Cellular, Paging, Cable, and Broadcast Industries.

We added the shares of PacTel Corp. to the Recommended List because the shares broke last December's IPO price of \$23, presenting an attractive buying opportunity to play a company with a rapidly growing collection of wireless assets, as well as the strongest balance sheet in the industry. PTW has assembled an attractive portfolio of wireless properties around the world. The new company controls ten of the 30 largest U.S. cellular properties and a total of 34.7 million pro forma domestic pops. Internationally, PTW has approximately 40 million pops in attractive markets. After the spin-off of the remaining 86% of the company later this year, PTW, which has announced that it will change its name to AirTouch Communications, will be the second largest independent cellular company in the U.S. Our near-term price target is \$26-27 based on a 15% discount to our 1994 private market value, which we estimate to be between \$30.50-32.00.

[Dennis Leibowitz / Geoffrey Jones, March 11, 1994]

COMPANY	Exchange	Symbol	3/10/94 Price	12/31/93 Price	YTD Change	Last Issue	52 Week Range	Ind. Divd.	Current Yield	Shares (millions)	Mkt. Cap. (millions)	POPS (mill.)
INDEPENDENT CELLULAR COMPANIES												
Associated Communications Corp.	OTC	ACCMA	23.63	28.50	-17.1	-1.6	34-17	--	--	37.5	884.9	5.8
BCE Mobile Communications, Inc.	TSE	BCXTO	29.32	31.25	-6.2	0.2	32-20	--	--	69.2	2,028.6	15.0
Cellular Communications, Inc.	OTC	COMMA	45.88	46.75	-1.9	-2.9	49-35	--	--	40.2	1,846.0	7.9
Cellular Comms. of Puerto Rico, Inc.	OTC	CCPR	22.50	22.50	0.0	-2.2	26-18	--	--	9.8	219.5	3.0
Centennial Cellular Corp.	OTC	CYCL	22.25	24.25	-8.2	14.1	24-12	--	--	11.2	217.7	4.0
Comcast Corporation	OTC	CMCSK	19.75	24.00	-17.7	3.3	26-11	0.09	0.5	219.2	4,191.4	5.0
CommNet Cellular, Inc.	OTC	CELS	18.63	17.50	6.4	-3.9	22-13	--	--	11.5	214.6	3.2
Cortel Cellular, Inc.	OTC	CCXLA	15.50	16.38	-5.3	-8.8	22-14	--	--	99.9	1,699.1	23.7
LIN Broadcasting Corporation	OTC	LINB	112.00	110.50	1.4	0.7	122-80	--	--	51.5	5,724.4	27.2
McCaw Cellular Comms., Inc.(a)	OTC	MCAWA	49.25	50.50	-2.5	-1.5	58-35	--	--	206.9	10,347.2	65.6
PacTel Corporation (b)	NYSE	PTW	23.75	24.88	-4.5	1.6	27-21	--	--	492.5	11,512.2	77.9
Rogers Cantel Mobile Comms., Inc.	OTC	RCMIF	27.00	27.00	0.0	-3.6	32-21	--	--	93.9	2,629.0	23.6
United States Cellular Corporation	AMEX	USM	26.88	35.00	-23.2	-4.0	39-23	--	--	57.2	1,602.0	23.6
Vanguard Cellular Systems, Inc.	OTC	VCELA	30.13	29.25	3.0	2.1	35-21	--	--	25.6	755.2	6.5
Vodafone Group Plc	NYSE	VOD	88.25	89.25	-1.1	0.3	95-57	1.44	1.6	100.6	8,649.1	99.8
REGIONAL BELL HOLDING COMPANIES												
Ameritech Corporation	NYSE	AIT	40.88	38.38	6.5	1.9	46-36	1.92	4.7	545.8	22,308.1	32.1
Bell Atlantic Corporation	NYSE	BEL	53.13	59.25	-10.3	-2.5	69-51	2.68	5.0	436.0	23,163.2	59.8
BellSouth Corporation	NYSE	BLS	54.13	58.00	-6.7	-0.2	64-51	2.76	5.1	498.1	26,850.6	92.6
NYNEX Corporation	NYSE	NYN	36.75	40.13	-8.4	-0.3	49-37	2.36	6.4	413.0	15,178.6	23.3
Pacific Telesis Group (c)	NYSE	PAC	54.38	54.25	0.2	0.2	59-45	2.18	4.0	421.6	22,923.1	67.0
Southwestern Bell Corporation	NYSE	SBC	40.00	41.50	-3.6	3.2	47-36	1.51	3.8	599.4	23,976.0	34.5
U S WEST, Inc.	NYSE	USW	39.38	45.88	-14.2	0.0	51-39	2.14	5.4	417.8	16,449.1	61.9
INDEPENDENT TELEPHONE COMPANIES												
ALLTEL Corporation	NYSE	AT	27.25	29.50	-7.6	1.9	31-24	0.88	3.2	185.3	5,048.2	7.9
Century Telephone Enterprises, Inc.	NYSE	CTL	23.88	25.75	-7.3	-6.8	33-23	0.31	1.3	51.3	1,224.0	7.1
Cincinnati Bell, Inc.	NYSE	CSN	16.63	18.00	-7.6	3.1	24-16	0.80	4.8	64.9	1,078.9	2.2
GTE Corporation (d)	NYSE	GTE	31.75	35.00	-9.3	-4.9	40-31	1.88	5.9	946.3	30,043.6	65.6
Lincoln Telecommunications Co.	OTC	LTEC	16.63	18.50	-10.1	-14.7	21-13	0.52	3.1	32.6	541.4	0.5
Rochester Telephone Corporation	NYSE	RTC	42.63	45.13	-5.5	-0.9	50-36	1.58	3.7	33.9	1,446.0	2.1
Southern New England Telecom.	NYSE	SNG	30.75	36.13	-14.9	-0.8	38-31	1.76	5.7	63.8	1,853.3	3.3
Sprint Corporation	NYSE	FON	35.75	34.75	2.9	-3.1	40-30	1.00	2.8	342.5	12,244.1	20.8
Telephone & Data Systems (e)	AMEX	TDS	42.75	52.13	-18.0	-4.5	57-37	0.36	0.8	49.5	2,115.9	19.4
ESMR OPERATORS												
CellCall Communications Corp.	OTC	CCAL	27.50	28.00	-1.8	13.4	46-21	--	--	17.2	471.7	7.1
Dial Page, Inc.	OTC	DPGE	58.75	39.75	47.8	22.4	78-8	--	--	9.2	539.5	7.1
NEXTEL Communications, Inc.	OTC	CALL	45.63	37.25	22.5	25.0	55-21	--	--	85.3	3,992.0	7.1
Pittenger Communications, Inc.	OTC	PTC	24.25	24.50	-1.0	2.1	42-14	--	--	11.7	283.6	7.1
PAGING COMPANIES												
A+ Communications, Inc.	OTC	ACOM	11.25	13.00	-13.5	-4.3	19-11	--	--	6.0	67.1	7.1
Arch Communications Group, Inc.	OTC	AFGR	14.13	13.75	2.7	-4.2	19-10	--	--	7.2	101.1	7.1
Metrolink, Inc.	OTC	MCLL	18.50	17.50	5.7	6.8	25-13	--	--	7.1	131.4	7.1
Mobile Telecom. Tech. Corp.	OTC	MTEL	17.88	24.25	-26.3	7.5	39-14	--	--	34.3	612.9	7.1
Page America Group, Inc.	AMEX	PGG	4.61	4.63	4.1	4.1	6-3	--	--	3.8	18.5	7.1
Paging Network, Inc.	OTC	PAGE	28.75	30.50	-12.3	-1.8	35-17	--	--	50.5	1,351.9	7.1
ProNet, Inc.	OTC	PNET	14.00	12.75	9.8	24.4	19-5	--	--	3.7	52.5	7.1
United States Paging Corporation	OTC	USPC	5.38	4.97	8.2	22.9	6-4	--	--	3.4	18.3	7.1
EQUIPMENT SUPPLIERS												
The Allen Group, Inc.	NYSE	ALN	15.38	18.13	-15.2	6.0	29-14	0.16	1.0	25.8	396.5	7.1
Andrew Corporation	OTC	ANDW	31.75	38.50	-23.7	-4.8	34-13	--	--	16.8	789.9	7.1
American Telephone and Telegraph	NYSE	T	51.13	52.50	-2.6	-2.4	65-51	1.32	2.8	1350.3	69,036.1	7.1
Audiotex Corporation	AMEX	VOX	14.63	16.25	-10.0	-9.3	18-7	--	--	9.0	131.7	7.1
LM Ericsson Telephone Company	OTC	ERICY	44.00	40.38	9.0	2.3	60-30	0.46	1.0	216.0	3,504.0	7.1
General Electric Company	NYSE	GE	104.50	104.88	-0.4	-0.9	110-86	2.88	2.8	852.9	89,131.8	7.1
Glenayre Technologies, Inc.	OTC	GEMS	37.50	43.50	-13.8	1.4	55-9	--	--	14.1	528.6	7.1
Matsushita Electric Industrial Co.	NYSE	MC	169.50	139.00	25.6	5.3	172-87	1.10	0.6	2094.9	355,093.3	7.1
Motorola, Inc.	NYSE	MOT	105.88	92.25	14.8	2.8	108-61	0.56	0.5	278.0	29,437.9	7.1
Northern Telecom Limited	NYSE	NT	30.50	30.88	-1.2	2.5	45-21	0.36	1.2	250.8	7,648.7	7.1
QUALCOMM Incorporated	OTC	QCOM	24.88	26.50	-6.1	19.2	43-19	--	--	50.8	1,262.9	7.1

Note: This report is not intended as an offering of an offer to buy or sell the securities mentioned. While all the information is derived from sources we deem reliable, we do not represent that it is accurate or complete. Such information and the opinions expressed are subject to change without notice.

Notes: (a) Pro rata for 52.5% ownership of LIN Broadcasting.
(b) POPS are pro rata for approximate 12.0% ownership of Cellular Communications, Inc.
(c) Pro rata for 86.0% ownership of PacTel Corporation.
(d) Pro rata for 90.0% ownership of Cortel Cellular, Inc.
(e) Pro rata for 82.2% ownership of United States Cellular.
(f) Index includes COMMA, LINB, MCAWA, PTW, USM, VCELA, and VOD.

Users Applaud MCI's \$1.3B Move to Wireless Services

BY JOHN HENDLEMAN

WASHINGTON Users are lauding MCI Communications Corp.'s plans to offer nationwide specialized mobile radio services through its \$1.3 billion stake in Nextel Communications Inc.

"It sounds like MCI has decided to exploit the existing SMR infrastructure, which should allow them to bring the services to market very quickly," said Mike Leonardich, telecommunications manager for DHL Airways Inc., Redwood City, Calif. "It sounds like something we're very interested in taking a look at."

Other users agreed. "We're excited about wireless technologies," said Gene Hengel, director of strategic technologies for Insurance Value Added Network Services, Greenwich, Conn.

According to the announce-



ROBERTS: In '95, MCI wireless services will be in cities.

ment made last month, the carrier will buy a 17 percent stake in Nextel for \$1.3 billion. Nextel, Rutheford, N.J., has radio licenses and interoperability agreements in 45 of the top 50

MCI, page 35

MCI Users Applaud MCI's \$1.3B Move to Wireless Services

Continued from page 33

U.S. markets and reaches 95 percent of the U.S. population, the companies said (Comm Week, March 7).

MCI and Nextel plan to offer digital voice, two-way paging, dispatch and data messaging services integrated with MCI's long distance service in at least 10 major metropolitan markets by the first quarter of next year and in all major U.S. cities within two years.

"The insurance industry has a lot of mobile workers, and wireless services would support those workers," Hengel said. Wireless services could boost productivity and improve customer convenience for claims adjusters, auditors, field agents and home health-care workers, he said.

MCI's mobile services will be "months or even years ahead of competing companies," said Bert Roberts, MCI chairman and CEO. "By this time next year, we expect to see MCI digital wireless services in major cities throughout the United States."

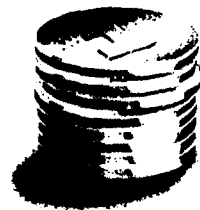
Industry observers said MCI's deal with Nextel is a response to AT&T's pending acquisition of McCaw Cellular Communications Inc., Kirkland, Wash.

"MCI felt threatened by AT&T's acquisition of McCaw," said Casey Dworkin, general manager with Personal Technology Research, a Waltham, Mass.-based consultancy. "It certainly made sense for MCI to expand beyond their traditional outlets. Longer term, it's a defensive move. [MCI] simply felt there was an imperative to act quickly."

A spokesman for AT&T said its acquisition of McCaw "will allow us to be very effective players in the marketplace." MCI's entry into the local exchange puts pressure on the local telephone companies to drop the access rates they charge the long distance provider for originating and terminating the carrier's calls, said Herschel Shosteck, president of Herschel Shosteck Associates, Silver Spring, Md. ■

What if you could

PAY LESS



for

cellular airtime and enjoy improved



SERVICE, while taking

advantage of **LEADING**

EDGE TECHNOLOGY,



but without sacrificing

COVERAGE



& convenience?

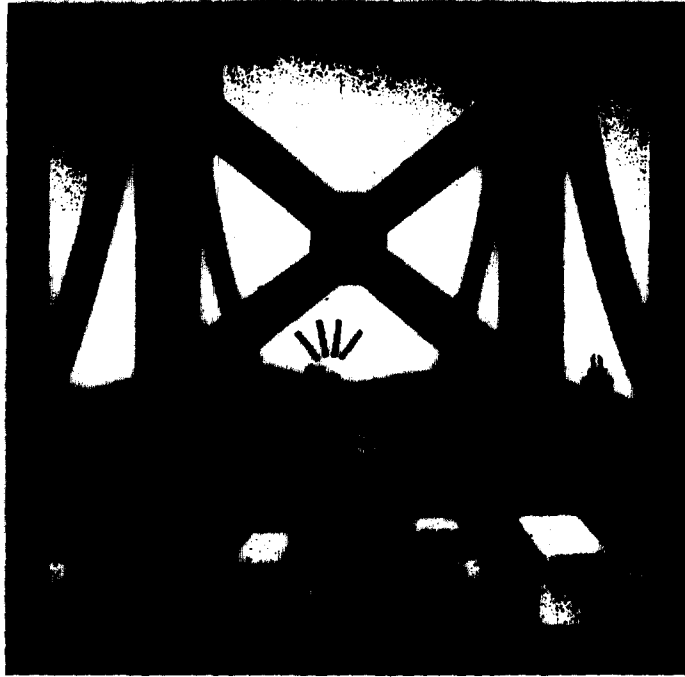
You can, with Cellular One's

DIGITAL SERVICE!

CELLULARONE

» **DIGITAL NETWORK™**

DIGITAL SERVICE IS IMPROVED SERVICE



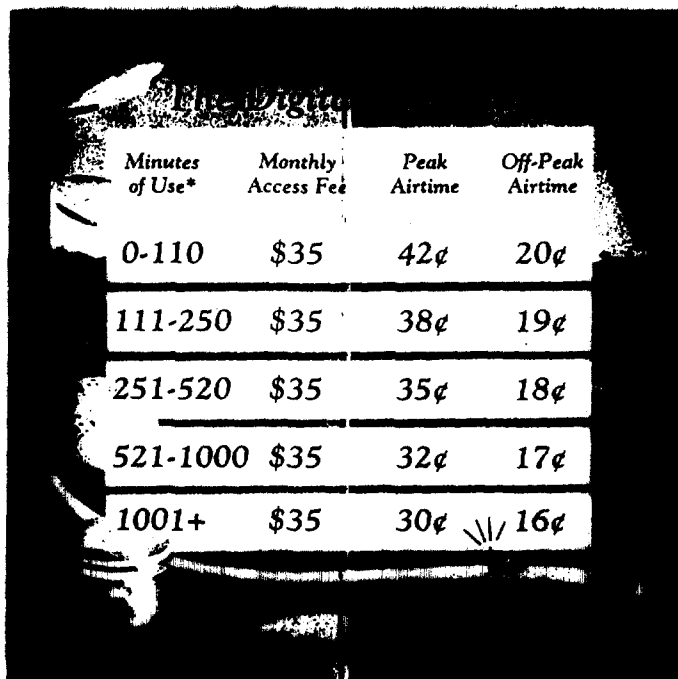
What is digital?

Digital cellular service represents the next generation in the evolution of cellular technology. Quite simply, it is a different, and more efficient, mode of sending your voice over radio waves. Using the most widely accepted and deployed digital standard, Cellular One's Digital Service dramatically increases call capacity over current analog cellular systems.

What does it do for you?

- Allows greater system access. Because call capacity on a digital channel is tripled, more of your calls go through on the first try.
- Increases call privacy. Digital technology encodes the sound of your voice into discrete bits of electronic information prior to sending it over the airwaves. As a result, call security is enhanced.
- Less static and crosstalk. You'll enjoy these benefits as well as fewer dropped calls.
- Extends battery life. Up to 50% more talk-time between battery charges when you're communicating on a digital channel.

DIGITAL SERVICE MEANS SAVINGS



Minutes of Use*	Monthly Access Fee	Peak Airtime	Off-Peak Airtime
0-110	\$35	42¢	20¢
111-250	\$35	38¢	19¢
251-520	\$35	35¢	18¢
521-1000	\$35	32¢	17¢
1001+	\$35	30¢	16¢

* Per-minute charges adjust to your usage level each month – automatically! For example, in a month in which you use 300 minutes of airtime, all of those minutes are charged at the 251-520 minute level.

We save. You save.

Because Cellular One's digital technology dramatically increases system capacity, we save on building and maintaining our network. This allows us to pass the savings along to you in the form of lower airtime rates.

Save up to 25%!

- The Digital Flex Plan can save you as much as 25% over our most popular analog Discount Rate Plan.**
- You control the bottom line with a monthly access fee of only \$35.
- Savings are ensured automatically thanks to flexible per-minute airtime rates. The more airtime you use, the more you save!
- You'll enjoy lower digital rates even when you're outside a digital coverage area.

Digital Joint Accounts Program.

If you choose the Digital Flex Plan, you may add a second phone to your account and receive a \$10 monthly discount on your bill. This program makes it easy for you to pass along your analog phone when you upgrade to digital technology.

** Comparison made to the existing Occasional Discount Rate Plan and based on historical peak and off-peak patterns.

DIGITAL SERVICE IS FLEXIBLE SERVICE



How do you access digital?

To access Cellular One's Digital Service, you need a digital dual-mode cellular telephone. "Dual-mode" means that your telephone can access both digital and analog systems. What's more, the phone makes the switch automatically depending on which system is available. Think of it as a smart phone that accesses the best available channel — digital or analog — without bothering you about the decision.

The result? You get the savings and improved service provided by the latest development in cellular technology. And you sacrifice none of the coverage or convenience you've come to depend on from Cellular One.

Listen!

For a pre-recorded demonstration of digital sound quality, call **1-800-64-DIGITAL** and hear the digital difference.

Service Information

Start of Service: \$25

Peak Period: 7:00 am to 7:00 pm Monday through Friday.

Off-Peak Period: 7:00 pm to 7:00 am, Monday through Friday, all day Saturday, Sunday and these Holidays: New Year's Day, President's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas.

Plan requires a 12 month commitment with a maximum early cancellation fee of \$100. If you deactivate within the first 60 days, no penalties will apply. A digital dual-mode (TDMA) phone is required to access digital service and activate on the Digital Flex Plan.

Joint Accounts offer good on individual accounts when the second phone is activated on any Discount Rate Plan or the Digital Flex Plan. Both phones appear on one bill and the second phone is subject to the terms and conditions of the selected rate plan.

T A F E T O T H E A C T I V E D I G I T A L

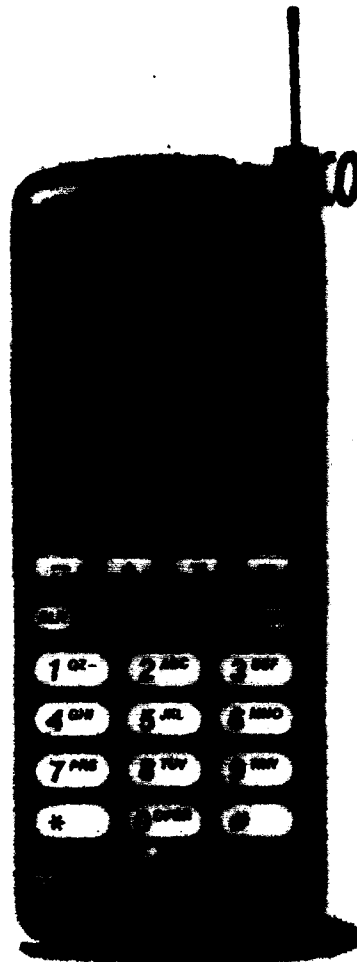
GET OUR LOWEST DIGITAL PRICES EVER

INCOMING CALLS FREE UNTIL 1995

199

Northern California's exclusive digital cellular provider, Cellular One, just brought the hottest technology in the air down-to-earth!

- Buy any digital dual mode phone from an authorized Cellular One dealer and you can receive a \$300 service credit on a Cellular One digital rate plan.
- Plus, all your incoming calls will be FREE until 1995 when you sign up for a discount or digital rate plan by October 24.
- Hurry, offer and supplies are limited!



CELLULARONE
DIGITAL NETWORK™

1 - 8 0 0 - 4 2 4 - 1 9 9 9

*Phone pictured is \$549 before \$300 service credit. Tax not included. Termination of service within 6 months requires repayment of credit. Promotional offers apply to new customers activating on selected rate plans between September 15, 1994 and October 24, 1994. Security and other plans excluded. Occasional Plan receives free incoming calls through November 30, 1994. Activation not required for hardware. Phones available at participating dealer locations only. Prices may vary by dealer. Other restrictions apply.

September 15, 1994

VIA HAND DELIVERY

Proposal and Advice Letter (PAL) Coordinator
CACD Telecommunications Branch
California Public Utilities Commission
505 Van Ness Avenue, Room 3203
San Francisco, CA 94102

Re: **Advice Letter No. 292 of Bay Area Cellular
Telephone Company; CIS ID No. U-3007-C**

Dear PAL Coordinator:

Bay Area Cellular Telephone Company ("BACTC") hereby transmits for filing the original and five copies of the following advice letter proposing changes to its tariff applicable to cellular radiotelecommunications service in the San Francisco/San Jose Cellular Geographic Service Areas.

<u>Schedule No.</u>	<u>New Cal. P.U.C. Sheet No.</u>	<u>Cancelling P.U.C. Sheet No.</u>
3-T	82nd Rev. Sheet No. 1	81st Rev. Sheet No. 1
3-T	42nd Rev. Sheet No. 2	41st Rev. Sheet No. 2
3-T	1st Rev. Sheet No. 4-2.1	Original Sheet No. 4-2.1
3-T	1st Rev. Sheet No. 5-6.3	Original Sheet No. 5-6.3
3-T	Original Sheet No. 5-6.4	
4-T	70th Rev. Sheet No. 1	69th Rev. Sheet No. 1
4-T	31st Rev. Sheet No. 2	30th Rev. Sheet No. 2
4-T	1st Rev. Sheet No. 6-1.1	Original Sheet No. 6-1.1
4-T	Original Sheet No. 6-10	

The purpose of this filing is to introduce the Digital Flex Plan in BACTC's retail and wholesale tariffs.

c:\data\tariff\advltr\digiflex.ltr

PAL Coordinator
CACD Telecommunications Branch
September 15, 1994
Page 2

This advice letter filing is made pursuant to CPUC Decision No. 94-04-043, effective April 6, 1993, modifying Decision No. 90-06-025. BACTC requests that this tariff filing be classified as a "temporary tariff" and be made effective on the date filed.

This filing will not increase any rate or charge, cause the withdrawal of any service, or conflict with other schedules. In compliance with General Order No. 96-A, copies of this advice letter and related tariff sheets are being mailed to all competing and adjacent utilities, and to other interested parties having requested such notification.

Anyone may protest this advice letter to the California Public Utilities Commission. The protest must set forth the specific grounds on which it is based, including such items as financial and service impact. A protest must be made in writing and received within 20 days of the date this advice letter was filed with the Commission. The address for mailing or delivering a protest to the Commission is:

PAL Coordinator
CACD Telecommunications Branch
California Public Utilities Commission
505 Van Ness Avenue, Room 3203
San Francisco, CA 94102

Copies of the protest must be mailed to BACTC on the same date it is mailed or delivered to the Commission, at the following address:

Adam A. Andersen
Senior Counsel
Bay Area Cellular Telephone Company
651 Gateway Boulevard, Suite 1500
South San Francisco, CA 94080

If there are any questions regarding this filing, please contact the undersigned counsel.

PAL Coordinator
CACD Telecommunications Branch
September 15, 1994
Page 3

After filing these sheets, kindly provide us with a file-stamped copy of the advice letter in the stamped, self-addressed envelope provided. When these tariff sheets become effective, please provide us with a copy of the tariff sheets stamped with the effective date in the second stamped, self-addressed envelope. Thank you for your assistance in this matter.

Very truly yours,

A handwritten signature in black ink, appearing to read "Adam Andersen", with a long horizontal flourish extending to the right.

Adam A. Andersen
Senior Counsel

Attachments

cc: Attached Service List